REMARKS

The drawings are objected to because FIG. 5 has certain informalities. After reviewing the Examiner's comments, Applicants do not see what the problem is with having xln in the figure, and note that FIG. 5 does not illustrate yln. Clarification is respectfully requested.

Claims 14-17 are rejected under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter. In response thereto, Applicants have amended the claims to address the issues raised by the Examiner. Accordingly, all of the claims are now deemed to be in compliance with 35 USC §112.

The disclosure has been objected because of certain informalities on page 8, lines 8 and 10. Accordingly, Applicants have amended the disclosure to address the issues raised by the Examiner.

Claims 1-21 and 44 are rejected under 35 USC §102(a) as being anticipated by McGill et al., MRS 2003.

Given that the McGill et al. paper has the same inventive entity as the authors of the paper and a publication date of 2003, this reference should not be used against the inventor as prior art. The present application claims priority from provisional application Ser. No. 60/400,754 filed August 2, 2002. Therefore, it is requested that the rejection be removed.

Claims 1-21 and 44 are rejected under 35 USC §102(b) as being anticipated by Lin et al., Journal of Crystal Growth, 1994.

Lin et al. describes the formation of double light-emitting diodes grown on $GaAs_xP_{1-x}$ substrates.

However, Lin et al. do not teach or suggest an $In_x(Al_yGa_{1-y})_{1-x}P$ lower clad region formed on said platform and having a lattice constant between approximately 5.49 Å and 5.62 Å. Lin et al. describes the growth and characterization of $Al_xGa_{0.65-x}In_{0.35}P$ grown on $GaAs_{0.7}P_{0.3}$ substrates. There is no discussion regarding the lattice constant of the a lower clad region or any $In_x(Al_yGa_{1-y})_{1-x}P$ structure. In Lin et al, the clad and active region both specify an indium fraction of 0.35. This by definition means that the active region is lattice-matched to the clad, as lattice constant in the [In_x(Al_yGa_1-y)_1-x]P system is approximately constant at a given x for all y.

Graded buffer structures used in the invention and in Lin et al are designed to distribute strain from the substrate mismatch across the graded buffer, such that the uppermost part of the graded buffer is approximately relaxed (unstrained). Therefore, mismatch to the substrate plays a negligible part in device performance. The strain of interest is between clad and active region, and again, Lin et al have no strain between clad and active region, while it is integral to the inventive device.

Moreover, Lin et al. do not teach or suggest a strained quantum well active region formed on said lower clad region. Lin et al. do not address the issue or formation of a quantum well. The Examiner asserts that a well appears to be strained as the clad layers are not stated to be lattice matched to the substrate or quantum well. Frankly, the Examiner's position is not supported by Lin et al. There is no discussion regarding a quantum well or forming of a quantum well and to state that because the clad layers are not to be lattice matched implies the formation of a strained quantum well is an over generalization of what is shown in Lin et al. Therefore, the article by Lin et al. does not anticipate claims 1-21 and 44.

Claims 20 and 21 are rejected under 35 USC §103 as being unpatentable over Lin et al. in view of Nitta, US 6,278,136.

Nitta '136 describes a light emitting element that includes a multi layered structure including an n-type nitride compound semiconductor layer.

Given that claims 20 and 21, are dependent on claim 1, the reasons argued for claim 1 are also applicable here. Also, Nitta '136 does not address the deficiencies of Lin et al. Therefore, the proposed combination of Lin et al. and Nitta '136 does not render obvious claims 20 and 21.

Claim 18 is rejected under 35 USC §103 as being unpatentable over Lin et al. in view of Schneider, Jr. et al., US 5,557,627.

Schneider, Jr. et al. '627 describes a visible semiconductor laser that includes InAlGaP active region surrounded by one or more AlGaAs layers on each side.

Given that claims 20 and 21, are dependent on claim 1, the reasons argued for claim 1 are also applicable here. Also, Schneider, Jr. et al. '627 does not address the deficiencies of Lin et al. Therefore, the proposed combination of Lin et al. and Schneider, Jr. et al. '627 does not render obvious claims 20 and 21.

In view of the above amendments and for all the reasons set forth above, the Examiner is respectfully requested to reconsider and withdraw the objections and rejections made under 35 U.S.C. §§§ 103 and 112, first and second paragraphs. Accordingly, an early indication of allowability is earnestly solicited.

If the Examiner has any questions regarding matters pending in this application, please feel free to contact the undersigned below.

Respectfully submitted,

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